

REMARKS

In accordance with the foregoing, claims 1-13 are pending and claims 1-12 have been withdrawn from consideration. Applicants confirm the election of invention III, claim 13 on November 14, 2002. The specification has been amended to correct various informalities. The drawings have been corrected in the enclosed Request for Approval of Drawing Corrections. No new matter is presented.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: T2 (Fig. 1) and 1 (Fig. 4, 5, and 6). Figs. 1, 4, 5 and 6 have been corrected to remove these references. Applicants request that this objection be withdrawn.

Figs. 10 and 11 are also objected to because they should be labeled prior art. Applicants respectfully submit that Figs. 10 and 11, as filed, were indeed labeled prior art. Applicants request that this objection be withdrawn.

The drawings were further objected to because the sectional cross-hatching in Fig. 1 is incorrect. Fig. 1 has been corrected in the attached Request for Approval of Drawing Corrections. Applicants request that this objection be withdrawn.

The specification was objected due to various informalities. The specification has been amended to correct these informalities. However, Applicants respectfully submit that the disclosure at page 22, lines 2-3, is not inconsistent with the figures. The reference to Fig. 5 in line 1 of page 22 relates only to the charged roller 35. The discussion of the collecting conductive brush roller 25 and the counter roller 26 relate to Fig. 3, not Fig. 5. However, for clarification purposes, the specification has been amended to add a reference to Fig. 3 after the discussion of the collecting conductive brush roller 25 and the counter roller 26. Applicants request that this objection be withdrawn.

Claim 13 was rejected under 35 USC 103(a) as being unpatentable over Takaharu, JP 2000-250249 in view of Tadokoro (U.S. Pat. No. 5,113,226). This rejection is respectfully traversed.

Claim 13 recites “a sheet charging apparatus which charges the surface of the image receiving sheet to a polarity opposite to a charged polarity of toner particles, in advance of a transferring process carried out by the transferring apparatus.” Since the surface of the image receiving sheet is charged to a polarity opposite to a charged polarity of the toner particles, the toner particles can be held in an electrostatically stable condition and image retention can be improved because the charge exists at the surface side of the image receiving sheet. Further, even if the image receiving sheets are stacked, the back-side copying phenomenon, where the toner particles are transferred to the backside of an opposite sheet, can be avoided because of this charge at the surface side of the image receiving sheet.

The Examiner admits that Takaharu does not teach charging the surface of the image receiving sheet in advance of the transferring process. The Examiner asserts that Tadokoro teaches the claimed feature of charging the surface of the image receiving sheet in advance of the transferring process. The Examiner asserted that it would have been obvious to apply the charging apparatus and the transferring apparatus as taught by Tadokoro in place of the transferring apparatus of Takaharu because of the same functionality for transferring the toner particles to the image receiving sheet. Applicants respectfully suggest that there would have been no motivation to modify Takaharu in light of the teachings of Tadokoro.

Tadokoro is directed to a device which permanently fixes the toner to the recording paper. Takaharu, on the other hand, is directed to a non-fixing type image forming method in which the image forming sheet is formed with a rugged surface so that the toner is collected in recesses of the image forming sheet to allow the toner to be easily removed to reuse the image forming sheet. One would not have been motivated by the teachings of Tadokoro to modify Takaharu because of the vastly different objectives of these two references. One would not have been motivated to combine the teachings of a reference directed to permanently fixing toner onto a sheet of paper with a reference which is directed to fixing toner onto a sheet of paper in a manner such that the toner is easily removable to reuse the paper. Merely because these two references relate to a very broad art of image forming apparatuses alone is not sufficient

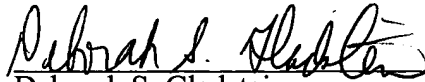
motivation to combine their teachings. Accordingly, Applicants request that this rejection be withdrawn.

Attached hereto is a marked-up version of the changes made to the specification by the current amendment, captioned "**Version with markings to show changes made**".

In the event that the transmittal letter is separated from this document and the Patent Office determines that an extension and/or other relief is required, Applicants petition for any required relief including extensions of time and authorize the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to **Deposit Account No. 03-1952** referencing docket no. 204552021800.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Specification:

On pages 6-11, paragraphs 0019-0039 have been amended as follows:

[0019] Objects of inventions ~~cited in claim 1 and claim 2 of the present application~~ are to provide an image receiving sheet which can be used repeatedly, to improve a mechanical retentivity as compared with the image receiving sheet described in Published Patent Application (KOKAI) No. 6-43682, and to improve a desired property as demanded by consumers with regard to properties such as a toner retentivity including electric factor, a toner transferability and a cleaning ability (toner removability).

[0020] An object of ~~an~~ the invention ~~as cited in claim 3~~ is to improve three properties of the electric toner: the retentivity, the toner transferability and the cleanability (toner removability), as a whole.

[0021] An object of ~~an~~ the invention ~~as cited in claim 4~~ is to further improve the above-mentioned three properties in all.

[0022] An object of ~~an~~ the invention ~~as cited in claim 5~~ is to further improve particularly the transferability and the retentivity.

[0023] An object of ~~an~~ the invention ~~as cited in claim 6 of the present application~~ is to provide an image receiving sheet which can be used repeatedly, to improve a mechanical retentivity as compared with the image receiving sheet described in Published Patent Application (KOKAI) No. 6-43682, and to improve even the cleanability (toner removability).

[0024] An object of ~~an~~ the invention ~~as cited in claim 7~~ is to further improve the mechanical retentivity.

[0025] ~~Other Objects~~ objects of the inventions invention ~~as cited in claim 8 through claim 11 of the present application~~ are to provide an image receiving sheet which can be used repeatedly, and to improve the retentivity of toner particles and the cleanability (toner

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removability).

[0026] Other Objects objects of the inventions invention as cited in claim 12 & claim 13 of the present application are to improve the transferability and retentivity of toner particles in the image forming method and image forming apparatus of the non-fixing type image receiving sheet.

2. SOLUTION FOR THE PROBLEMS

[0027] (1) In order to accomplish the above objects, the invention ~~as cited in claim 1 of this application~~ is characterized by that, in the non-fixing type image receiving sheet to which toner particles are made adhere in a removable manner; a large number of concave portions accepting toner particles and a large number of convex portions protecting toner particles are formed on a surface of the image receiving sheet, and a sectional structure of the image receiving sheet is composed of a multilayer structure which includes at least a sheet surface layer having the above concave portions and convex portions and a sheet core layer.

[0028] (2) The invention ~~as cited in claim 2~~ according to an embodiment is characterized by that, in the non-fixing type image receiving sheet, ~~as set forth in claim 1;~~ volume resistivities of respective layers are different from each other.

[0029] (3) The invention ~~as cited in claim 3~~ according to another embodiment is characterized by that, in the non-fixing type image receiving sheet ~~as set forth in claim 2;~~ a volume resistivity of the sheet surface layer is larger than a volume resistivity of the sheet core layer.

[0030] (4) The invention ~~as cited in claim 4~~ according to yet another embodiment is characterized by that, in the non-fixing type image receiving sheet ~~as set forth in claim 3;~~ a volume resistivity of the sheet surface layer is set to $10^{12} \Omega \cdot \text{cm}$ or larger and a volume resistivity of the sheet core layer is set to $10^4 \Omega \cdot \text{cm}$ or larger and to $10^{10} \Omega \cdot \text{cm}$ or smaller.

[0031] (5) The invention ~~as cited in claim 5~~ according to another embodiment is characterized by that, in the non-fixing type image receiving sheet ~~as set forth in claim 1, 2, 3 or~~

4., the concave portion forming the above uneven surface is formed into a grooved shape and the convex portion is formed into a convex stripe extending along the grooved concave portion.

[0032] (6) The invention ~~cited in claim 6 of the present application~~ according to another embodiment is characterized by that, in the non-fixing type image receiving sheet to which toner particles are made adhere in a removable manner, a large number of concave portions accepting toner particles and a large number of convex portions protecting toner particles are formed on the surface of the image receiving sheet, and a center line average roughness Ra of the surface of the image receiving sheet is set to 0.2 μm or larger and to 1.0 μm or smaller.

[0033] (7) The non-fixing type image receiving sheet ~~as cited in claim 7~~ is characterized by that, in the non-fixing type image receiving sheet ~~as set forth in claim 6~~, the concave portion composing the above uneven surface is formed into a grooved shape, and the convex portion is formed into a ridged-shape convex stripe extending along the grooved-shape concave portion.

[0034] (8) The invention ~~as cited in claim 8 of the present application~~ according to another embodiment is characterized by that, in the non-fixing type image receiving sheet to which toner particles are made adhere in a removable manner, a large number of concave portions accepting toner particles and a large number of convex portions protecting toner particles are formed on the surface of the image receiving sheet, and the surface of the image receiving sheet forming the concave portion and convex portion is made of high-molecular compound including fine particles of metal oxide.

[0035] (9) The invention ~~as cited in claim 9~~ according to another embodiment is characterized by that, in the non-fixing type image receiving sheet ~~as set forth in claim 8~~, a content of the fine particles of metal oxide is set to 0.1 g through 2 g per square meter of the image receiving sheet.

[0036] (10) The invention ~~as cited in claim 10~~ according to another embodiment is characterized by that, in the non-fixing type image receiving sheet ~~as set forth in claim 8 or 9~~, fine particles of zinc oxide, titanium oxide or alumina are contained for use as the fine particles of metal oxide.

[0037] (11) The invention ~~as cited in claim 11~~ according to another embodiment is characterized by that, in the non-fixing type image receiving sheet ~~as set forth in claim 8 or 9~~, fine particles of calcium carbonate or silica are contained in place of the metal oxide.

[0038] (12) The invention ~~as cited in claim 12 of the present application~~ according to another embodiment is characterized by that, in the image forming method for the non-fixing type image receiving sheet to which toner particles are made adhere in a removable manner, a large number of concave portions accepting toner particles and a large number of convex portions protecting toner particles are formed on the surface of the image receiving sheet, and the surface of the image receiving sheet is charged to a polarity opposite to the charged polarity of toner particles for serving as a pre-process, in advance of transferring the toner image to the image receiving sheet.

[0039] (13) The invention ~~as cited in claim 13~~ according to another embodiment is characterized by that, in the image forming apparatus for the non-fixing type image receiving sheet to which toner particles are made adhere in a removable manner, a large number of concave portions accepting toner particles and a large number of convex portions protecting toner particles are formed on the surface of the image receiving sheet, and there are installed two apparatuses: a transferring apparatus which transfers the toner image to the surface of image receiving sheet, and a sheet charging apparatus which charges the surface of the image receiving sheet to a polarity opposite to the charged polarity of the toner particles, in advance of the transferring process carried out by the transferring apparatus.

On pages 21-22, paragraph 0083 has been amended as follows:

[0083] (4) The image receiving sheet S to which the toner image has been transferred is transported to the convex stripe cleaning apparatus 22 of Fig. 3, and the toner particles 10 adhering to the convex stripe portion 6 are collected by an electrostatic force of a charged roller (positive charge) 35, as shown in Fig. 5. In this instance, the collecting conductive brush roller 25 is applied with a bias of about +300V, and a counter roller 26 is grounded, as shown in Fig. 3.

On pages 44-45, paragraph 0151 has been amended as follows:

[0151] The sheet feeding portion 212 has a feeding tray 226 accommodating the image receiving sheet S. Further, the sheet feeding portion 212 has a dividing mechanism 228 which divides and sends only the top-positioned sheet among plural image receiving sheets S laid and accommodated in the feeding tray 226, and a feeding-out mechanism 232 which feeds out the top-positioned sheet divided from a lower layer sheet by the dividing mechanism 228 along a sheet transporting path 230. In this embodiment, a dividing apparatus 232 having a pick-up roller contacting with the top-positioned sheet and a dividing pad contacting with an outer peripheral face of the pick-up roller, is used for the dividing mechanism 228. However, a dividing mechanism having another structures may be used. Such a roller transporting apparatus utilized in a sheet transporting apparatus for conventional copying machine and printer etc., is used for the feeding ~~out~~ out mechanism 232; in which a first shaft connected to a drive system and a second shaft disposed in parallel with the former are installed, plural rollers (rubber rollers, for instance) are fitted to these shafts with specified distances put between them, the sheet is transported by being sandwiched between a roller fitted to one-side roller and a roller fitted to the other-side roller.

(Impregnating portion)